



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,669	09/30/2003	Mario Elmen Tremblay	8598MR	5011

27752 7590 10/06/2008
THE PROCTER & GAMBLE COMPANY
Global Legal Department - IP
Sycamore Building - 4th Floor
299 East Sixth Street
CINCINNATI, OH 45202

EXAMINER

ZHENG, LOIS L

ART UNIT	PAPER NUMBER
----------	--------------

1793

MAIL DATE	DELIVERY MODE
-----------	---------------

10/06/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/674,669	Applicant(s) TREMBLAY ET AL.	
	Examiner LOIS ZHENG	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15, 18 and 19 is/are rejected.
- 7) ☒ Claim(s) 16 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/20/08</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

1. Claims 1, 9, 15 are amended in view of applicant's amendment filed 8 July 2008. Therefore, claims 1-19 are currently under examination.

Status of Previous Rejections

2. The rejection of claims 9-14 and 17-18 under 35 U.S.C. 103(a) as being unpatentable over Kelley US 6,306,281 B1(Kelley) in view of Kaczur et al. US 5,106,465(Kaczur), and further in view of Sampson et al. US 6,024,850(Sampson), and further in view of Cowley et al. US 5,965,004(Cowley), and further in view of DE 100 17 407 A1 (DE'407) is withdrawn in view of applicant's arguments on page 17 of the remarks filed 8 July 2008.
3. The rejection of claims 15 and 19 under 35 U.S.C. 103(a) as being unpatentable over Kelley in view of Kaczur, Sampson, Cowley and DE '407 and further in view of Zappi et al. US 6,328,875 B1(Zappi) is withdrawn in view of applicant's arguments on page 17 of the remarks filed 8 July 2008.

Specification

4. The amendment to the specification filed 8 July 2008 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: Example A and related discussion and Table A.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1, 9 and 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In this case, claims 1, 9 and 15 recite "wherein the system is structured to consume power at about one Watt or less". This claim amendment is not supported by the original specification.

In addition, claim 15 further recites "said reservoir is configured to automatically deliver halogen dioxide salt". However, the original specification does disclose that the halogen dioxide salt is automatically delivered.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

8. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Buckley et al. US 6,632,347 B1(Buckley).

Art Unit: 1793

Buckley teaches an electrochemical apparatus comprising a concentrated salt solution tank that supplies concentrated salt solution to process water stream to locally form the electrolyte feed solution to the electrolyzer(Fig. 2 #20, col. 19 line 64 - col. 20 line 49). Buckley further teaches using a peristaltic pump for pumping the concentrated salt solution to the process water stream forming feed stream to the electrolyzer(col. 20 lines 41-45, Fig. 2). Buckley's electrolyzer comprise an anode, a cathode, a porous ceramic semi-permeable separator separating the anode and the cathode, an inlet for receiving the feed solution and an outlet for discharging effluent. The electrolyzer of Buckley further comprises a passage of feed solution adjacent to the anode and an electric current supply inherently capable of providing current to the electrolysis cell such that the power consumed is about 1 watt or less.

Regarding claim 1, the apparatus of Buckley is structurally the same as the halogen dioxide generating system as claimed. In addition, the claimed halogen dioxide feed solution or the halogen dioxide salt are directed to material being worked on by the claimed apparatus, therefore, do not render the instant apparatus claims patentable. See MPEP 2115.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1793

10. Claims 4-5 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buckley.

The teachings of Buckley are discussed in paragraph 8 above.

Buckley further teaches that its apparatus is used to produce biocidal solutions (col. 3 lines 24-29). Therefore, it would have been obvious to one of ordinary skill in the art to have established an interface between the apparatus of Buckley and any appliances that requires disinfecting, such as the claimed washing machine, faucets, oral irrigators, etc. in order to effectively remove all bacterial as taught by Buckley. In addition, the connection between the electrolytic cell and the water inlet of the appliance and the water/ice dispensing device of the appliance would have inherently been present in the apparatus of Buckley and Kazcur in order to use the biocidal solution to remove bacteria.

11. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Buckley, and further in view of Spence US 4,414,070(Spence).

The teachings of Buckley are discussed in paragraphs 8 and 10 above.

However, Buckley does not explicitly teach the claimed gap between the anode and the cathode.

Spence teaches that the efficiency of electrolytic cells is dependent upon the anode-cathode distance, and that as the distance decreases the efficiency increases (col. 1, lines 24-29). Therefore, Spence's teaching shows that the gap between an anode and a cathode is a result effective variable.

Therefore, it would have been obvious to one of ordinary skill in the art to have routinely optimized the gap between the anode and the cathode in the electrolysis cell of Buckley as suggested by Spence to achieve a minimized spacing, such as 0.5 mm or less as claimed, in order to maximize the cell efficiency as taught by Spence.

12. Claims 3, 9-11, 13-15 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buckley, and further in view of Kaczur et al. US 5,106,465 (Kaczur).

The teachings of Buckley are discussed in paragraphs 8 and 10 above. Buckley further teaches that its anode is a titanium anode(col. 14 lines 25-27).

However, Buckley does not explicitly teach that the metal anode is porous. Buckley also does not explicitly teach that its porous separator comprises the claimed plurality of objects packed into the chamber between the anode and the cathode or one or more baffles positioned between the anode and the cathode.

Kaczur also teaches an electrolytic cell for the generation of chlorine dioxide (abstract). Kaczur further teaches the use of a porous platinum coated titanium anode(col. 4 lines 41-63).

Regarding claim 3, it would have been obvious to one of ordinary skill in the art to have incorporated the porous platinum coated titanium anode of Kaczur into the electrolytic apparatus of Buckley in order to utilize the high surface contact area due to the porosity of the anode and achieve high corrosion resistance as taught by Kaczur (col. 4 lines 44-45 and 57-60).

Art Unit: 1793

Regarding claims 9 and 15, the porous anode of Buckley in view of Kaczur comprises a plurality of porous flow passages through which at least a portion of the aqueous feed solution flows.

Regarding claims 10-11 and 13-14, the instant claims are rejected for the same reasons as set forth in the rejections of 4-5 and 7-8 above.

Regarding claims 18-19, Example 9 of Kaczur further teaches using three layer of polypropylene spacer material to distribute the electrolyte feed and to provide support for the membrane(col. 10 lines 56-59).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the one or more layers of polypropylene spacer material as taught by Kaczur into the electrolytic cell of Buckley in order to distribute the electrolyte feed, provide use of the expanded metal anode and provide a gas release zone for the cathode as taught by Kaczur. In addition, the spacer material can also be used as support structure to stabilize the anode and cathode in the electrolytic cell of Buckley in view of Kaczur. Therefore, the layers of polypropylene spacer material as taught by Buckley in view of Kaczur reads on a plurality of objects packed into the chamber between the anode and the cathode as claimed.

13. Claims 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buckley in view of Kaczur, and further in view of DE 100 17 407 A1 (DE'407).

The teachings of Buckley in view of Kaczur are discussed in paragraph 12 above. However, Buckley and Kaczur do not explicitly teach that its electrolyzer is interfaced with an appliance via a connection of water inlet line to the inlet of the

Art Unit: 1793

electrolytic cell and an connection of an outlet line from the outlet of the electrolysis cell to the inlet of the appliance.

DE'407 teaches an electrolytic apparatus for continuously treating water via electrolysis of chlorine dioxide from sodium chlorite(page 4 paragraph 0016, pages 5-6 paragraph 0021).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the continuous water treatment of DE'407 into the apparatus of Buckley in view of Kaczur in order to achieve simple handling, safe production and reduced cost as taught by DE'407(page 4 paragraph 0016).

Regarding claims 6 and 12, the feed line as taught by Buckley in view of Kaczur and DE'407 reads on the claimed connection of a water inlet line. In addition, it would have been obvious to one of ordinary skill in the art to have added the claimed connection from the outlet of the electrolytic cell to the inlet of an appliance as claimed in order to allow the consumption of biocidal solution in various appliances.

14. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kelley US 6,306,281 B1(Kelley) and Buckley et al. US 6,632,347 B1(Buckley).

Kelley teaches an electrolytic apparatus for the generation of chlorine dioxide(abstract). The apparatus comprises an aqueous sodium chlorite feed solution(col. 2 lines 55-61), a non-membrane electrolysis cell comprising an anode, a cathode, an inlet, an outlet(Fig. 1) and a power source connected to the anode and the cathode(col. 3 lines 18-21), thereby providing current through the aqueous feed solution.

Regarding claim 1, the inlet and the gap between the anode and the cathode of Kelley reads on the claimed passage for the feed solution adjacent to the anode. The inlet in the electrolytic apparatus of Kelley is capable of receiving aqueous feed solution stream and the outlet in the apparatus of Kelly is capable of discharging halogen dioxide containing effluent as claimed.

In addition, the claimed halogen dioxide feed solution is directed to a material that is worked on by the instantly claimed apparatus. As stated in MPEP 2115, it is well settled that "[i]nclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims." *In re Young*, 75 F.2d 996, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)).

However, Kelley does not explicitly teach that the claimed means for delivering halogen dioxide salt directed to an aqueous feed solution inlet stream to locally form the aqueous halogen dioxide feed solution.

Buckley teaches an electrochemical apparatus comprising a concentrated salt solution tank that supplies concentrated salt solution to process water stream to locally form the electrolyte feed solution to the electrolyzer(Fig. 2 #20, col. 19 line 64 - col. 20 line 49). Buckley further teaches using a peristaltic pump for pumping the concentrated salt solution to the process water stream(col. 20 lines 41-45).

Regarding claim 1, it would have been obvious to one of ordinary skill in the art to have incorporated the electrolyte feeding mechanism of Buckley into the inlet stream of

Art Unit: 1793

Kelley in order to monitor and control the flow of the feed solution and to maintain the concentration of the feed solution as taught by Buckley.

Therefore, the apparatus of Kelley in view of Buckley comprises the claimed means for delivering halogen dioxide salt directly into an aqueous feed solution inlet stream to locally form the aqueous feed solution as claimed. In addition, since the apparatus of Kelley in view of Buckley is structurally the same as the claimed halogen dioxide generating system, one of ordinary skill in the art would have found it obvious that the apparatus of Kelley in view of Buckley is capable of consume power at about one Watt or less as claimed.

15. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kelley in view of Buckley, and further in view of Spence US 4,414,070(Spence).

The teachings of Kelley in view of Buckley are discussed in paragraph 14 above. However, Kelley in view of Buckley does not explicitly teach the claimed gap between the anode and the cathode.

Spence teaches that the efficiency of electrolytic cells is dependent upon the anode-cathode distance, and that as the distance decreases the efficiency increases (col. 1, lines 24-29). Therefore, Spence's teaching shows that the gap between an anode and a cathode is a result effective variable.

Therefore, it would have been obvious to one of ordinary skill in the art to have routinely optimized the gap between the anode and the cathode in the electrolysis cell of Kelley in view of Buckley as suggested by Spence to achieve a minimized spacing,

Art Unit: 1793

such as 0.5 mm or less as claimed, in order to maximize the cell efficiency as taught by Spence.

16. Claims 3-5 and 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelley in view of Buckley, and further in view of Kaczur et al. US 5,106,465 (Kaczur).

The teachings of Kelley in view of Buckley are discussed in paragraph 14 above. Kelley further teaches the use of a dimensionally stable platinum coated titanium anode(col. 3 lines 13-18).

However, Kelley does not explicitly teach that the metal anode is porous.

Kaczur also teaches an electrolytic cell for the generation of chlorine dioxide (abstract). Kaczur further teaches the use of a porous platinum coated titanium anode(col. 4 lines 41-63).

Regarding claim 3, it would have been obvious to one of ordinary skill in the art to have incorporated the porous platinum coated titanium anode of Kaczur into the electrolytic apparatus of Kelley in view of Buckley in order to utilize the high surface contact area due to the porosity of the anode and achieve high corrosion resistance as taught by Kaczur (col. 4 lines 44-45 and 57-60).

Regarding claims 4-5 and 7-8, Kaczur further teaches that chlorine dioxide is widely used as a disinfectant in water treatment/purification(col. 1 lines 16-19).

Therefore, it would have been obvious to one of ordinary skill in the art to have established an interface between the chlorine dioxide generator of Kelley in view of Buckley and any appliances that requires water disinfecting and purification, such as the

Art Unit: 1793

claimed water purifier, water fountains, refrigerators, etc. in order to effectively purify water as taught by Kazcur before consumption. In addition, the connection between the electrolytic cell and the water inlet of the appliance and the water/ice dispensing device of the appliance would have inherently been present in the apparatus of Kelley in view of Buckley and Kazcur in order to purify untreated water into the appliance and convert it into purified water being dispensed for consumption.

17. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kelley in view of Buckley and Kaczur, and further in view of DE 100 17 407 A1 (DE'407).

The teachings of Kelley in view of Buckley and Kaczur are discussed in paragraph 16 above. However, Kelley in view of Buckley and Kaczur do not explicitly teach that the halogen dioxide generator is interfaced with an appliance via a connection of water inlet line to the inlet of the electrolytic cell and an connection of an outlet line from the outlet of the electrolysis cell to the inlet of the appliance.

DE'407 teaches an electrolytic apparatus for continuously treating/purifying water via electrolysis of chlorine dioxide from sodium chlorite (page 4 paragraph 0016, pages 5-6 paragraph 0021).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the continuous water treatment of DE'407 into the apparatus of Kelley in view of Buckley and Kaczur in order to achieve simple handling, safe production and reduced cost as taught by DE'407 (page 4 paragraph 0016).

Regarding claim 6, the feed line as taught by Kelley in view of Buckley, Kaczur and DE'407 reads on the claimed connection of a water inlet line. In addition, it would

Art Unit: 1793

have been obvious to one of ordinary skill in the art to have added the claimed connection from the outlet of the electrolytic cell to the inlet of an appliance as claimed in order to allow the consumption of purified water in various appliances.

18. Claims 9-15 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kelley in view of Buckley, and further in view of Kaczur, and further in view of Cowley et al. US 5,965,004(Cowley), and further in view of DE '407.

The teachings of Kelley in view of Buckley and Kaczur are discussed in paragraph 16 above. Buckley further teaches that a semi-permeable porous ceramic separator is placed between the anode and cathode of the electrolysis cell in order to achieve an adequate flow of solution between the anode and the cathode chambers to provide acceptable electrical resistance while being sufficiently non-permeable to prevent gross mixing of anolyte and catholyte (col. 24 lines 44-65).

Regarding claim 9, it would have been obvious to one of ordinary skill in the art to have incorporated the porous ceramic separator as taught by Buckley into the electrolytic cell of Kelley in view of Buckley in order to achieve an adequate flow of solution between the anode and the cathode chambers to provide acceptable electrical resistance while being sufficiently non-permeable to prevent gross mixing of anolyte and catholyte as taught by Buckley.

Therefore, the porous ceramic separator in the apparatus of Kelley in view of Buckley reads on the claimed non-conducting porous flow barrier. In addition, the apparatus of Kelley in view of Buckley comprises the claimed passage.

However, Kelley in view of Buckley do not explicitly teach the claimed return passage for returning the depleted effluent back to the source.

Cowley teaches an electrolytic cell for generating chlorine dioxide(abstract). Cowley further teaches recycling or reverting the remaining processing fluid after electrolysis back to the feed tank containing sodium chlorite solution(Fig. 1, #42).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the recirculation setup of Cowley into the electrolytic cell of Kelley in view of Buckley in order to achieve a highly efficient, continuous and effluent free operation as taught by Cowley(col. 1 line 62 – col. 2 line 2).

DE'407 teaches that chlorine dioxide is reduced to chlorite when treating water (page 6 paragraph 0021). Therefore, one of ordinary skill in the art would have found the claimed reversion to halogen dioxide salt(i.e. chlorine dioxide salt) from halogen dioxide(i.e. chlorine dioxide) inherently taking place when the electrolytic apparatus of Kelley in view of Buckley and Cowley is in use in light of the teachings of DE'407.

Regarding claim 9, the remaining claim limitations are rejected for the same reasons as stated in the rejection of claim 1 above. The apparatus of Kelly in view of Buckley, Cowley and DE'407 is capable of converting "a portion of halogen dioxide salt in the passage to halogen dioxide, and thereby forms an aqueous effluent comprising halogen dioxide" as claimed. In addition, the porous anode of Kelly in view of Buckley, Cowley and DE'407 is capable of allow at least a portion of the aqueous feed solution flows in a cross direction to a flow of electricity between the anode and the cathode as claimed. Furthermore, the porous ceramic spacer material as taught by Kelly in view of

Art Unit: 1793

Buckley, Cowley and DE'407 is non-conductive and is capable of restricting flow of the electrolyte solution in a cross direction to the flow of electricity between the anode and the cathode as claimed.

Regarding claims 10-11 and 13-14, Cowley further teaches that chlorine dioxide can be used for water purification(col. 1 lines 11-14). Therefore, it would have been obvious to one of ordinary skill in the art to have established an interface between the chlorine dioxide generator of Kelley in view of Buckley, Cowley and DE'407 and any appliances that requires water disinfecting and purification, such as the claimed water purifier, water fountains, refrigerators, etc. in order to effectively purify water as taught by Cowley before consumption. In addition, the claimed connection between the electrolytic cell and the water inlet of the appliance and the water/ice dispensing device of the appliance would have inherently been present in the apparatus of Kelley in view of Buckley, Cowley and DE'407 in order to purify untreated water into the appliance and convert it into purified water being dispensed for consumption.

Regarding claim 12, the instant claim is rejected for the same reason as stated in the rejection ground of instant claim 6 above.

Regarding claim 15, the instant claim is mostly rejected for the same reasons as set forth in the rejection of claim 9 above. In addition, the feed system as taught by Kelly in view of Buckley, Cowley and DE'407 comprises the claimed pump connected to the reservoir and the passage.

Regarding claims 18-19, the teachings of Kaczur are discussed in paragraph 16 above. Example 9 of Kaczur further teaches using three layer of polypropylene spacer

Art Unit: 1793

material to distribute the electrolyte feed and to provide support for the membrane(col. 10 lines 56-59).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the one or more layers of polypropylene spacer material as taught by Kaczur into the electrolytic cell of Kelley in view of Buckley, Cowley and DE'407 in order to distribute the electrolyte feed, provide use of the expanded metal anode and provide a gas release zone for the cathode as taught by Kaczur. In addition, the spacer material can also be used as support structure to stabilize the anode and cathode in the electrolytic cell of Kelley in view of Buckley, Cowley, DE'407 and Kaczur. Therefore, the layers of polypropylene spacer material as taught by Kelley in view of Buckley, Cowley, DE'407 and Kaczur reads on a plurality of objects packed into the chamber between the anode and the cathode as claimed.

Allowable Subject Matter

19. Claims 16-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

20. Applicant's arguments filed 8 July 2008 have been considered but are mostly moot in view of the new ground(s) of rejection.

In the remarks, applicant argues that Kelley does not teach the claimed system structured to consume power at about 1 watt or less.

The examiner does not find applicant's argument persuasive because the current in the electrolysis cell as taught by Kelley can be controlled. It is examiner's position that the power supply of Kelley is inherently capable of producing a current such that the voltage going through the electrolysis cell is 1 watt or less.

Applicant further argues that "Kaczur teaches away from an anode comprising a plurality of porous flow passages through which at least a portion of the aqueous feed solution flows".

The examiner does not find applicant's argument persuasive because Kaczur is incorporated into the apparatus of Buckley or Kelley for its teaching of a porous anode. The electrolysis cell of Buckley in view of Kaczur or Kelley in view of Buckley and Kaczur teaches the claimed porous anode comprising a plurality of porous flow passages through which at least a portion of the aqueous feed solution flows".

Applicant further argues that Kaczur does not teach using the porous flow barrier to restrict flow of an aqueous feed solution to increase a portion of feed solution that flows through the anode as claimed.

The examiner does not find applicant's argument persuasive. The separators as taught by Buckley in view of Kaczur or Kelley in view of Buckley and Kaczur are structurally the same as the claimed porous barrier. In addition, the structure of the electrolysis systems of Buckley in view of Kaczur or Kelley in view of Buckley and Kaczur are the same as the claimed apparatus. Therefore, the examiner maintains that the separators of Buckley in view of Kaczur or Kelley in view of Buckley and Kaczur are

capable of restricting the flow of feed solution and increase a portion of the feed solution that flows through the anode as claimed.

Conclusion

21. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LOIS ZHENG whose telephone number is (571)272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1793

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
Supervisory Patent Examiner, Art
Unit 1793

LLZ